Mechanism Capable of Fissioning Stable Elements and Producing Enhanced Thermonuclear Effects

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Introduction

A fundamental misconception regarding fission dynamics has prevented researchers from creating viable fission devices which utilize stable elements as a fissionable core. If viability of such a device could be established, it would enable countries without access to enriched uranium to provide for their own defense and would drive down the cost of maintaining nuclear weapons over the long-term as uranium cores would no longer require periodic replacement.

Abstract

The somewhat recent insight into fusion dynamics promulgated by this author which states that fusion reactions are driven by gluon/odderon saturation hints that fission dynamics have been similarly misunderstood by the physics community at large. Given the strength of the strong nuclear force, it seems unreasonable to believe that kinetic energy from neutrons could be responsible for fission. Nevertheless, this is taught as scientific fact in our classrooms as is assumed by researchers at the highest level to be true. This is an assumption which has not been exhaustively tested at any point in time and has not been modified since the time of the birth of the atom bomb for reason that very few entities are permitted (by resources or by law) to conduct experiments with fission on a large scale. The belief that neutrons striking nuclei generate fission through kinetic force is one which is based solely upon assumptions made by the original Manhattan Engineering District findings.

That a large number of neutrons are required to promote a fissioning chain reaction is not in dispute. However, if kinetic impact of a neutron is not what drives the dissolution of the nucleus into its constituent components but rather some other effect associated with the presence of neutrons, this may point the way to more efficient and adaptable fission mechanisms.

If protons of high energy and close proximity lead to the generation of gluons and odderons, thus promoting nuclear fusion, it stands to reason that high concentrations of neutrons may generation as-yet-undiscovered particles which may be termed anti-gluons and anti-odderons. The strong nuclear force, in the presence of such a field, could be expected to be negated by this field effect, resulting in the detachment of protons and neutrons within even stable elements. The reason, I would submit, that elements such as lead will not chain react when bombarded with neutrons under ordinary circumstances (if we, for example, replace a uranium core with a lead core) is because this field effect extends over perhaps seven or eight atomic spaces and does not result in a chain reaction

unless additional neutrons are both continually generated and the neutrons have sufficient kinetic energy to segregate the fissioning material. Pushing aside the individual uranium atoms so that neutrons can saturate into deeper layers is the only kinetic aspect of a neutron-based fissioning chain reaction.

This means that the tritium component ordinarily used to enhance a fission reaction could, in and of itself, with a properly configured fuel core made of a stable element such as lead, result in a powerful fission reaction. The needed change would be that the leaden mass would need to feature hollow corridors resembling the aisles between seats in a theater or stadium which run in multiple directions and at multiple angles. This would permit neutrons to permeate the entirety of the core prior to fission taking effect.

After fission begins, equal numbers of protons and neutrons would be generated by a stable element such as lead's fissioning. This would reduce the relative concentration of the anti-gluon component of the field as many gluons and odderons would be released by the fissioning. The anti-gluon field must be strong and comparatively pure in order for it to overcome the strong force which binds nuclei together. This purity is not long-lived and consequently, such a reaction could be predicted to fizzle without *neutron ventilation corridors* within the fuel. When using a fuel which does not create its own neutrons (relying upon the initial pulse of neutrons) greater numbers of neutrons are required. Additionally, the ventilated design of a such a leaden core would create opportunities for "breezeback" of neutrons. Neutrons moving in opposing directions could be predicted to generate anti-odderons which would further negate the strong nuclear force binding the nucleons in the fuel core.

Neutrons are not intrinsically stable and require the stabilizing effects of nearby quarks from proton-associated quark systems to prevent their destabilization. Thus, a neutron trap has not yet been invented. However, this author believes that *it is possible to stabilize neutrons in isolation by arraying protons within traps in a fractalized geodesic configuration*. With sufficient numbers of protons surrounding the neutrons, quark-associated stabilizing forces could be extended over greater distances in much the same way that Coulomb Force has been demonstrated to be extendable when many electrons or protons align. In such a regime, the neutrons would be physically held in place by Coulomb forces but stabilized by quark-associated forces (which are actually weaker than the weak nuclear force but which do not need to be very strong in order to stabilize a quark system.) For example, if a neutron would ordinarily need to be within 1/25th of an angstrom from positionally stable protons to enjoy internal stabilization of its quark system, if we create large arrays of these positionally stable trapped protons in the fractalized geodesic configuration consisting of quadrillions of protons occupying an area the size of a beach ball, the cumulative effect would be that a baseball-sized array of low-density neutrons could be accumulated which would be physically suspended in an atmospheric vacuum by Coulomb Forces alone at billions of points. A neutron gun could be used to add neutrons to the relevant area until it has reached saturation.

This type of approach to a fission device is preferable as it enables one to generate neutrons in advance of a detonation rather than requiring that they be generated in the midst of a detonation. This approach allows one to generate larger numbers of neutrons than would otherwise be possible whilst continuing to use high explosives to implode the core as one would in a more conventional fission device. The Coulomb-suspended and Extended Quark Force-stabilized neutrons would, prior to detonation, have a comparatively low density. As the neutrons rush inward during an implosion and reach the necessary density, they could be expected to introduce a substantial anti-gluon field which would trigger a fissioning reaction which could be expected to more completely consume the fissionable material than what is possible through the traditional method, provided that neutron ventilation corridors are incorporated into the leaden fuel core. This ventilated design has never been explored so far as this author is aware and was not possible in the 1940s given the unavailability of LASER lithography.

To employ an analogy, this approach is like manufacturing bullets which are later placed into the barrel of a gun and the traditional fission approach is akin to manufacturing the bullets while inside of the barrel in a single step at the expense of both quantity and quality. That traditional approach limits the ultimate density of a neutron cascade, forces the designer of a device to employ elements which are difficult to obtain and refine and produces detonations which do not consume all of the core material. If one compares enhanced fission detonations with basic fission detonations, a greater than 10-fold improvement is secured by simply adding more neutrons at the outset. This well-known fact demonstrates that maintaining a field which consists of more anti-gluons than gluons by a wide margin is the most important factor in ensuring complete fissioning of the fuel material. Provided that the aforementioned corridors are lithographically incorporated into the fuel core (despite this reducing its density slightly) the reaction would be free to "breathe" neutrons much as a campfire "breathes" oxygen and therefore could be predicted to be far more intense. In any fuel/oxidizer mixture, the volatility of explosion and the completeness of consumption of fuel depends upon the extent of oxidation. Fission is very much like chemical combustion save for the fact that one concerns neutrons and the other, protons. Fission, of course, requires that strong nuclear forces be overcome whilst combustion requires only that chemical bonds be broken and reformed; a lower hurdle to clear.

This means that an engineer would be free to pursue a tritium-only approach (if they could obtain sufficient quantities of tritium) but would also be free to pursue *neutron pre-manufacture and stabilization*. This has an advantage that the particles generated would consist purely of neutrons and thus would not produce any gluons or odderons during the implosion process as tritium does (tritium would not release all possible neutrons, in any case) which means that the most relevant factor, the anti-gluon field, would begin at a higher purity and would therefore be more capable of fissioning materials traditionally not considered fissionable and providing the greatest amount of energy relative to core size. This means that a more efficient fission reaction creating higher temperatures

and pressures could be established, which, in turn, could mean more efficient thermonuclear stages. While the neutron stabilization mechanism itself would contribute negligible quantities of hydrogen for the thermonuclear stage, a traditional thermonuclear stage consisting of liquid hydrogen reservoir can be added. If a traditional enhanced fission bomb can produce a yield of up to 1MT, a core of comparable size which incorporates an implosion of pure neutrons as well as lithographically-enabled ventilation of the core would, in and of itself, produce a detonation with a yield on the order of closer to 5MT.

Enhanced Thermonuclear Design

Just as a fission device comes in 'enhanced' and 'non-enhanced' flavors, an enhancement of the efficiency of a thermonuclear reaction is possible. A top-down reconsideration of extant designs could enable record-setting yields in comparatively small warhead designs.

The first and perhaps the simplest way in which thermonuclear weapons may be enhanced is to utilize liquid hydrogen shells rather than tanks sitting aside the fission device. Liquid hydrogen in a wide-perimeter shell could be wrapped within its own larger implosive core.

Only after the implosion of the inner, fissioning core, an exterior, high-explosive shell surrounding a large liquid hydrogen shell would direct energy inward, propelling the hydrogen at high velocity and density toward the outgoing protons and neutrons associated with the fission reaction. The combined relative velocity of the protons in a fusion reaction determines the density of the gluon/odderon field generated. The greater the density of the field, the more rapidly and completely the fuel will be fused.

Thus, ideally, as a fission bomb is exploding, a hydrogen layer should be made to collapse inward at high velocity toward the energetic reaction as this causes protons to oppose one another from opposite directions; absolutely essential to enhanced fusion. Devices such as Castle Bravo and Tsar Bomba were impractically heavy almost exclusively because of the hydrogen tank component. It should be possible; using this enhanced design; to achieve yields of 50MT within sufficiently compact warheads to make practical their delivery.

Beyond this, it should be possible to reproduce a phenomenon hypothesized recently by this author to transpire exclusively within the Sun in which fused materials sc. helium can be re-fissioned by electromagnetism generated by the fusion event and subsequently enable the same fuel to be fused a second time (or perhaps more depending upon hydrogen shell size) in the same overall explosion. As this explosion would be lacking in a magnetic containment field and the fuel would be finite, there is no risk of an endless cascade as transpires within the Sun.

This Fusion-Fission-Fusion after-effect could be predicted to approximately double the yield for each time the fusible material is re-fused. It is difficult to

estimate how many times this would occur with a given hydrogen complement. The fusion reaction would be producing its own intense electromagnetism which could be anticipated to break apart some helium nuclei in a relatively short span of time. The average length of time between fission and re-fusion would determine the extent of the cascade effect as this would determine the number of cycles made possible by a given hydrogen complement.

Conclusion

Although the fission component of the aforementioned design would take up slightly more space than a traditional fission apparatus, its enhanced efficiency would result in the production of higher temperatures and greater numbers of protons relative to core size. Particularly when coupled with the Enhanced Fusion Design, this ultimately results in a reduced demand for hydrogen and thus reduces the weight of fission devices at the expense of increased size, but could be predicted to reduce both the size and weight of overall thermonuclear designs.